



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,825	06/08/2005	Yasushi Tomioka	500-45133X00	8517
20457	7590	06/12/2008	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP			WU, SHEAN CHIU	
1300 NORTH SEVENTEENTH STREET			ART UNIT	PAPER NUMBER
SUITE 1800			1795	
ARLINGTON, VA 22209-3873			MAIL DATE	DELIVERY MODE
			06/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,825	<b>Applicant(s)</b> TOMIOKA ET AL.
	<b>Examiner</b> Shean C. Wu	<b>Art Unit</b> 1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 08 June 2005.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 June 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date: _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/165/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/05</u>  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "111" at left-hand side and "112" in Figures 1 and 3 have both been used to designate in the same area with different names (111: color filter layer, 112: organic protecting layer). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 10 and 18-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Gibbons (US 5,731,405).

Regarding claims 1 and 18-19, Gibbons teaches a liquid crystal display device (col. 1, lines 34-35) comprising a pair of substrates at least one of which is transparent glass (col. 20, lines 29-30); a liquid crystal layer disposed between said pair of substrates (col. 21, lines 1-2); a group of electrodes and a plural number of active elements being formed on one of said pair of substrates (col. 18, lines 28-32); and an alignment layer 3 disposed between said liquid crystal layer 5 and at least one of said pair of substrates 1 in Fig. 1 of Gibbons (col. 18, lines 14-25). Gibbons teaches that the alignment layer is a photo-reactive material layer, which contains molecules that will align liquid crystals after exposure with polarized light, (col. 4, lines 39-42 and column 15, lines 64-67). The reference also teaches liquid crystal display elements made by the process of the invention and to novel polyimide compositions that are useful as optical alignment layers (see abstract). The preferred polarization is linearly polarized light where the light is polarized mostly along one axis (the major axis) with little or no polarization component along the minor axis. The polarized light has one or more wavelengths of about from 150 to 2000 nm and most preferably the polarized light has one or more wavelengths of about from 150 to 400 nm and especially about from 300 and 400 nm.

The recitation "for applying to said liquid crystal layer an electric field substantially parallel to the substrate" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but,

instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478,481 (CCPA 1951). See MPEP 2111.02.

Regarding claim 2, the reference discloses most liquid crystal devices, including displays, have a finite pre-tilt angle, controlled, for instance, by the mechanical buffing of selected polymeric alignment layers. The liquid crystal molecules in contact with such a layer aligns parallel to the buffing direction, but is not exactly parallel to the substrate. The liquid crystal molecules are slightly tilted from the substrate, for instance by about 2-15 degrees. For optimum performance in most display applications a finite and uniform pre-tilt angle of the liquid crystal is desirable.

Regarding claims 3-5, Gibbons teaches that the alignment layer is made of an organic polymer prepared by dehydration ring-closure of at least one of a polymer and an oligomer-amic acid (poly(amic acid) is chemically imidized by addition of a dehydrating agent, col. 7, lines 15-17), comprising an aromatic diamine as amine moiety (col. 8, lines 9-19) and an aliphatic tetracarboxylic dianhydride or an alicyclic tetracarboxylic dianhydride as acid moiety including cyclobutanetetracarboxylic acid dianhydride (D5)(see col. 10, lines 47-57 and col. 14, line 64 to col. 15, line 5)

DS



Regarding to claim 6, the aromatic diamines which can be used are described on col. 8, lines 47-60.

Regarding to claim 10, the reference will inherently anticipate the claimed invention because the reference alignment layer comprises the similar components of Gallagher (US 4,835,249), which has glass transition temperature from 200 to 450 °C (see col. 8, lines 3-9).

With regarding to claims 20-24, the reference discloses that the coated substrates are heated in an oven under an inert atmosphere, for instance nitrogen or argon, at elevated temperature usually not exceeding 300° C, preferably at or less than 180° C. The heating process removes the solvent carrier and may be used to further cure the polymer. For instance, the poly(amic) acid films are thermally cured to generate polyimide films (see col. 15, lines 51-58).

The reference anticipates the claimed invention.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1795

5. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons (US '405) as applied to claims 1-6 and 18 above.

The reference differs from the present claims in that the present alignment layer having a thickness from 1 nm to 100 nm. Because the thickness of the present alignment layer is known and within the prior art teaching (see col. 10, lines 27-28 of US 5,990,856 and col. 5, lines 57-59 of US 5,940,156), therefore, it would have been obvious to those skilled in the art to select the present range of thickness for alignment layer to arrive at the claimed invention.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons (US 5,731,405) above in view of EP 850,975.

Gibbons differs from the claim in that the claim has a pretilt angle equal or less than one degree. EP '975 disclose that N-aralkyl substituted aromatic polyimide is useful for manufacture of liquid crystal cell alignment film with pretilt angle of less than one degree (see title).

7. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons (US 5,731,405) above in view of Hebiguchi et al. (US 6,433,764) or Hasegawa et al. (US 6,344,889).

Gibbons differs from the claims in that the claims has groups of electrodes comprising a pixel and common electrode with at least one of the electrode is TiO and the

electrode is formed on an insulating layer. The present claims are known in the art such as Hebiguchi et al (US '764, col. 7, lines 54-65 and col. 10, lines 54-67) and Hasegawa et al. (US '889, col. 9, lines 1-10 and col. 11, lines 14-22).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 10:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shean C Wu/  
Primary Examiner, Art Unit 1795

Application/Control Number: 10/537,825  
Art Unit: 1795

Page 8